

Russell T. Brown, Ph.D.

ICF Jones & Stokes Technical Director- Hydrology and Water Quality

Education

Ph.D. Civil Engineering and Water Resources, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1978.

M.S. Ocean Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1974.

B.S. Civil and Environmental Engineering, University of California, Irvine, 1972.

Professional Memberships

California Water and Environmental Modeling Forum

Russ Brown's areas of expertise include estuary tidal hydraulics, water quality, aquatic habitat and transport evaluations, reservoir and river temperature and water quality modeling, chemical transport and fate modeling, water quality sampling designs, and effluent discharge and mixing systems. He manages and conducts projects involving lake, reservoir, river, watershed erosion, hydrologic, and pollutant fate modeling or evaluations of hydrology and water quality field data.

Project Experience

South Delta Improvement Program EIS/EIR. Prepared the water supply, tidal hydraulics, and water quality sections of this large CEQA and NEPA document for California Department of Water Resources and US Bureau of Reclamation.

Water Temperature Modeling. Developed and applied an hourly river temperature model (JSATEMP) for fisheries evaluations on the Owens River, Putah Creek, Merced River, San Joaquin River, and Guadalupe River. Developed a daily water temperature model of the San Joaquin River from Friant Dam to the Merced River. Applied this daily flow and hourly water temperature model for evaluating restoration actions using Chinook salmon and steelhead temperature criteria and habitat assessment calculations.

Water Quality Assessment.. Developed a model for the assessment of the fate of nutrients and metals in the constructed wetlands at the Sacramento Regional Wastewater Treatment Plant. Developed models to assess the transport and fate of sediment and mercury in the Holston River, Virginia. Developed and applied a reservoir temperature and water quality model for Olivenhain Reservoir to help San Diego County Water Authority design the selective withdrawal facilities. Thermal stratification as well as salinity gradients that may control mixing in the reservoir were evaluated. Used the CE-QUAL-R2 model to evaluate the stratified reservoir water quality (temperature and dissolved oxygen) of Lake Almanor for PG&E and of San Luis Reservoir for the Santa Clara Valley Water District.

Hydrological and Ecological Modeling. Prepared habitat water quality evaluation for U.S. Bureau of Reclamation's Central Valley Project Improvement Act programmatic environmental impact statement (EIS) that linked reservoir and Delta operations and associated temperature and salinity conditions that govern habitat water quality fish responses. Developed a daily model of Delta exports and San Luis Reservoir

operations for use in interactive simulation (i.e., gaming) of export restrictions to protect endangered fish species for the CALFED environmental water account. Prepared an evaluation of the Salton Sea restoration EIS alternatives for Salton Sea Authority. Prepared the water supply and water quality impact sections for the Freeport diversion EIR/EIS for the EBMUD and Bureau of Reclamation.

Prepared an evaluation of the fish protection achieved by the head of Old River barrier, for Reclamation. Compared the daily catch of Chinook at the DFG/USFWS Mossdale Trawl with the CVP and SWP daily Chinook salvage. This evaluation compared the protection provided by the barrier and by the VAMP export reductions for a range of San Joaquin River flows and exports.

Selected Publications

Brown, R.T., A. Huber, J. Zhou, K. Steele. 2000. Planning Water Quality Operations for San Diego County Water Authority Emergency Storage Project Reservoirs. In Proceedings of 2000 Joint Conference on Water Resources Engineering and Water Resources Engineering and Management. ASCE Reston VA.

Brown, R.T., T. Cannon, D. Fullerton, B. Herbold. 2000. California (CALFED) Daily Environmental Water Management Modeling for Fish Protection and Water Supply Evaluation. In Proceedings of 2000 Joint Conference on Water Resources Engineering and Water Resources Engineering and Management. ASCE Reston VA.

Brown, R.T. 1998. Water Quality Impacts from Agricultural Drainage of Peat Soils in the Sacramento-San Joaquin Delta. Pages 1165-1170 in S.R. Abt, J. Young-Pezeshk, C.C. Watson (eds). Proceedings of the 1998 International Water Resources Engineering Conference, ASCE. Reston VA.

Brown, R.T., A. Huber. 1998. Hourly Water Temperature Modeling of the Guadalupe River, California. Pages 684-689 in S.R. Abt, J. Young-Pezeshk, C.C. Watson (eds). Proceedings of the 1998 International Water Resources Engineering Conference, ASCE. Reston VA.

Brown, R. T., J. J. Field, M. J. Zanolli, R. W. Crites. 1994. Modeling pollutant fate and transport in constructed wetlands. M. Edwards (ed.). *Proceedings of the 1994 National Conference on Environmental Engineering*, ASCE. New York, NY.